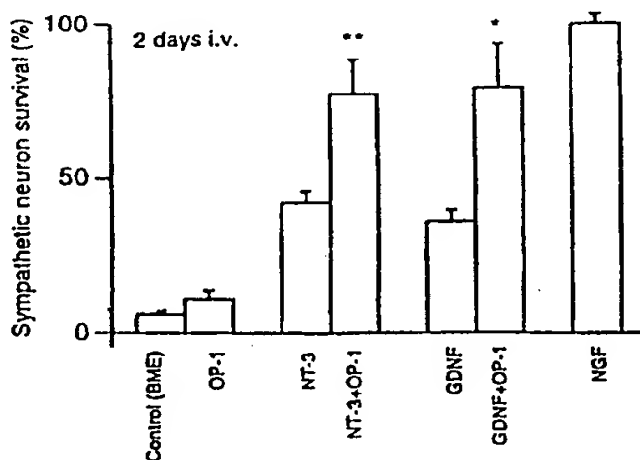




INTERNATIONAL APPLICATION PUBLISHED UNDER THE PATENT COOPERATION TREATY (PCT)

(51) International Patent Classification ⁶ : A61K 38/18, C12N 5/06, 5/08		A1	(11) International Publication Number: WO 99/12560
			(43) International Publication Date: 18 March 1999 (18.03.99)
(21) International Application Number: PCT/US98/18772 (22) International Filing Date: 9 September 1998 (09.09.98) (30) Priority Data: 60/058,258 9 September 1997 (09.09.97) US (71) Applicant (for all designated States except US): CREATIVE BIOMOLECULES, INC. [US/US]; 45 South Street, Hopkinton, MA 01748 (US). (72) Inventors; and (75) Inventors/Applicants (for US only): RUEGER, David, C. [US/US]; 81 Pine Hill Road, Southborough, MA 01772 (US). CHARETTE, Marc, F. [US/US]; 17 Ellicott Street, Needham, MA 02192 (US). EBENDAL, Ted [SE/SE]; Uppsala University, Dept. of Neurological Sciences, P.O. Box 587, BMC, S-751 23 Uppsala (SE). (74) Agent: TWOMEY, Michael, J.; Testa, Hurwitz & Thibault, LLP, High Street Tower, 125 High Street, Boston, MA 02110 (US).		(81) Designated States: AU, CA, JP, US, European patent (AT, BE, CH, CY, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE). Published <i>With international search report. Before the expiration of the time limit for amending the claims and to be republished in the event of the receipt of amendments.</i>	

(54) Title: SYNERGISTIC EFFECTS OF OP/BMP MORPHOGENS AND GDNF/NGF NEUROTROPHIC FACTORS



(57) Abstract

A synergistic effect of OP/BMP morphogens in combination with GDNF/NGF neurotrophic factors in promoting the survival or growth, or inhibiting the death or degeneration, of mammalian cells, particularly neural cells, which express OP/BMP-activated serine/threonine kinase receptors and GDNF/NGF-activated tyrosine kinase receptors, is disclosed. Also disclosed are new methods for the *in vivo* and *in vitro* treatment of such cells, including *in vivo* treatments for mammals afflicted with, or at imminent risk of, damage or injury to such cells, as well as new pharmaceutical preparations for such *in vivo* and *in vitro* treatments.